

## **Appendix B**

### **Source Water Assumptions Memorandum**

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## MEMORANDUM

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TO: Bob Holden, MRWPCA  
Larry Hampson, MPWMD  
CC: Alison Imamura, Denise Duffy & Assoc.

DATE: March 26, 2015

FROM: Andrew Sterbenz, PE

JOB #: MRWP.01.14

SUBJECT: Pure Water Monterey Groundwater Replenishment Project – Proposed Source Water Availability, Yield, and Use

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The purpose of this memorandum is to summarize the source water availability and yield estimates for the Pure Water Monterey Groundwater Replenishment Project (Proposed Project), to explain the seasonal storage yield estimates, and to provide the proposed maximum and typical (or normal) water use estimates for the Proposed Project. The GWR Project will develop various source waters and convey them to the MRWPCA Regional Treatment Plant (RTP) where they will undergo primary and secondary treatment with the current municipal wastewater flows, and then undergo Advanced Water Treatment before being conveyed for injection in the Seaside Groundwater Basin. Source waters conveyed to the RTP which are not required for the GWR project will undergo tertiary treatment at the Salinas Valley Reclamation Plant (SVRP) and be used to increase the recycled water supply provided to the Castroville Seawater Intrusion Project (CSIP).

A number of technical documents were prepared to analyze and confirm available source supplies for the Proposed Project. Source waters for the GWR Project include new surface water diversions, agricultural wash water, urban stormwater runoff and unused secondary-treated effluent from the RTP which would otherwise be discharged to the ocean as further described, below. The source water availability studies that have been used as the basis for estimating yield are cited throughout this report. These reports and studies include:

1. Schaaf & Wheeler, (Revised Draft) Reclamation Ditch Yield Study, March 2015
2. Schaaf & Wheeler, (Revised Draft) Blanco Drain Yield Study, December 2014
3. Data on Source Water Estimates provided by Bob Holden, MRWPCA, February 2014
4. Todd Groundwater, (Draft) *Memorandum: Pure Water Monterey Groundwater Replenishment Project: Impacts of Changes in Percolation at the Salinas Industrial Wastewater Treatment Facility on Groundwater and the Salinas River*, February 2015
5. Schaaf & Wheeler, (Revised Draft) *Groundwater Replenishment Project, Salinas River Inflow Impacts*, March 2015
6. Schaaf & Wheeler, (Revised Draft) *Groundwater Replenishment Project, Urban Runoff Capture at Lake El Estero*, April 2014
7. Data from *Monterey County Water Recycling Projects/Salinas Valley Water Project/Salinas River Diversion Facility Update*, MCWRA Board Packet, February 24, 2014

The primary purpose of the GWR Project is to provide high quality replacement water to allow California American Water Company (CalAm) to extract 3,500 AFY more water from the Seaside Basin for

delivery to its customers in the Monterey District service area and reduce Carmel River system water use by an equivalent amount. To meet this objective, the GWR Project would include features that would create a reliable source of water supply by using source waters described below to produce purified recycled water using existing secondary treatment processes and a new Advanced Water Treatment (AWT) Facility at the MRWPCA Regional Treatment Plant. After treatment by the AWT Facility, the purified recycled water would be conveyed to the Seaside Groundwater Basin for subsurface injection using a series of shallow and deep wells. In the Seaside Groundwater Basin, the treated water would mix with the groundwater present in the aquifers and be stored for future urban use. CalAm would use existing wells and improved potable water supply distribution facilities to extract and distribute the GWR water, enabling CalAm to reduce its diversions from the Carmel River system by this same amount.

Another purpose of the proposed GWR Project is to provide additional water to the Regional Treatment Plant that could be recycled at the existing tertiary treatment facility (the Salinas Valley Reclamation Plant) and used for crop irrigation using the Castroville Seawater Intrusion Project system. The Salinas Valley Reclamation Plant produces tertiary-treated, disinfected recycled water for agricultural irrigation within the CSIP service area. Municipal wastewater and certain urban dry weather runoff diversions treated at the Regional Treatment Plant are currently the only sources of supply for the Salinas Valley Reclamation Plant. Municipal wastewater flows have declined in recent years due to aggressive water conservation efforts by the MRWPCA member entities. The new sources of water supply developed for the GWR Project would increase supply available at the Regional Treatment Plant for use by the Salinas Valley Reclamation Plant during the peak irrigation season (April to September). In addition, the GWR Project would include Salinas Valley Reclamation Plant modifications to allow tertiary treatment at lower daily production rates, facilitating increased use of recycled water during the late fall, winter and early spring months when demand drops below 5 million gallons per day (MGD).

Source waters for the GWR Project include new surface water diversions, agricultural wash water, urban stormwater runoff and unused secondary-treated effluent from the RTP which would otherwise be discharged to the ocean.

### **Agricultural Wash Water**

The City of Salinas owns and operates an industrial wastewater collection and treatment system, which serves approximately 25 agricultural processing and related businesses located in the southeast corner of the City. This wastewater collection system is separate from the Salinas municipal sewage collection system. These flows, referred to as Agricultural Wash Water, are conveyed in a network of gravity pipelines to the Salinas Industrial Wastewater Treatment Facility (SIWTF), where it is treated using aeration and disposed of using evaporation and percolation. These flows would be redirected into the municipal wastewater system for conveyance to the RTP as a source of supply for the GWR Project. Annual inflows to the SIWTF were analyzed and a projection of year 2017 flows was prepared by the MRWPCA<sup>1</sup>, as shown in the first row of Table 1, below.

The SIWTF consists of an aeration basin, three storage/percolation ponds covering 108 acres, drying beds covering 67 acres and three rapid infiltration basins covering 1.3 acres. To assess the effects of diverting flows treated at the SIWTF, Todd Groundwater<sup>2</sup> estimated the percentages of flows disposed as evaporation, percolation from the main ponds, and disposal through the drying beds and rapid infiltration basins (RIBs). These values are shown in Table 1, below, and are used in the estimation of seasonal storage losses discussed later in this memorandum.

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<sup>1</sup> Estimation by Bob Holden, MRWPCA, February 2014

<sup>2</sup> Todd Groundwater, (Draft) Memorandum: Pure Water Monterey Groundwater Replenishment Project: Impacts of Changes in Percolation at the Salinas Industrial Wastewater Treatment Facility on Groundwater and the Salinas River, February 2015

**Table 1: Agricultural Wash Water**

Source \ Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Ag. Wash Water - 2017	156	158	201	307	311	391	435	444	367	410	329	223	3,732
Rainfall	26.4	23.7	21.3	11.1	3.0	0.8	0.2	0.4	1.7	5.7	14.2	23.7	132
Evaporation	-12	-16	-29	-41	-46	-52	-45	-43	-32	-28	-15	-12	-372
Percolation from ponds 1, 2, and 3	-143	-129	-143	-138	-143	-138	-143	-143	-138	-143	-138	-143	-1,680
RIBs/Drying Beds	-28	-37	-51	-139	-125	-202	-247	-258	-198	-245	-190	-92	-1,812

### Urban Stormwater Runoff

Urban stormwater runoff from two communities would be captured and used for the GWR Project. Capturing stormwater flows before they reach a stream or river does not require a water rights permit from the SWRCB.

Stormwater and urban runoff from the southern portion of the City of Salinas is pumped to the Salinas River (the rest of the City drains into the Reclamation Ditch system). Schaaf & Wheeler<sup>3</sup> estimated the amount of stormwater flow which could be diverted to the municipal wastewater system or the SIWTF for use in the GWR Project. The estimated average annual yield is provided in Table 2, below.

Stormwater and urban runoff from 2,400 acres within the City of Monterey flow to Lake El Estero, which is maintained as part of El Estero Park. Excess stormwater is pumped to a discharge point on Del Monte State Beach. Schaaf & Wheeler<sup>4</sup> estimated the amount of stormwater flow which could be diverted to the municipal wastewater system for use in the GWR Project. The estimated average annual yield is provided in Table 2.

**Table 2: Urban Runoff Sources**

Source \ Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
South Salinas	52	41	34	16	2	0	0	0	2	8	23	47	225
Lake El Estero	24	15	14	5	1	0	0	0	1	4	10	13	87

### Surface Water Rights

The Proposed Project would use three new surface water diversion sites to provide new source waters for recycling. The first two are from the Reclamation Ditch system, which has a drainage area of 157 square-miles. The Reclamation Ditch carries seasonal stormwater flows, urban runoff from the City of Salinas and agricultural tile drainage flows. Diversion points are proposed on the Reclamation Ditch at Davis Road, and on the Tembladero Slough at Castroville, based on the proximity of the channel to existing wastewater conveyance facilities. Schaaf & Wheeler<sup>5</sup> estimated the yield from this system, assuming a maximum 6 cfs diversion rate at Davis Road, maximum 3 cfs diversion rate at Castroville, and leaving an in-stream flow of 2 cfs at Davis Road in the winter, 0.7 cfs in the summer, and 1 cfs at Castroville year-round. The average annual yields from these diversions are shown in Table 3, below.

<sup>3</sup> Schaaf & Wheeler, (Revised Draft) *Groundwater Replenishment Project, Salinas River Inflow Impacts*, March 2015

<sup>4</sup> Schaaf & Wheeler, (Revised Draft) *Groundwater Replenishment Project, Urban Runoff Capture at Lake El Estero*, April 2014

<sup>5</sup> Schaaf & Wheeler, (Revised Draft) *Reclamation Ditch Yield Study*, March 2015

The third diversion is from the Blanco Drain, just above its confluence with the Salinas River. The Blanco Drain conveys seasonal stormwater flows and agricultural tile drainage from 6,400 acres. Schaaf & Wheeler<sup>6</sup> estimated the yield from this system, assuming a maximum diversion rate of 6 cfs, as shown in Table 3.

All of these diversions would require water rights permits from the State Water Resources Control Board (SWRCB).

**Table 3: Surface Water Sources**

Source \ Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Reclamation Ditch	162	143	165	162	97	132	129	121	80	87	98	146	1,522
Tembladero Slough	131	117	142	154	145	67	66	62	41	45	50	115	1,135
Blanco Drain	209	223	246	252	225	274	277	244	184	168	133	185	2,620

### Secondary Treated Effluent

Secondary treated municipal effluent from the RTP is currently used as influent for the SVRP tertiary treatment system or, when demand is low, disposed via the existing MRWPCA ocean outfall. Recycled water production at the SVRP is managed to match the irrigation demands within the CSIP service area, which peaks in the spring and summer. Flows which would otherwise go to the outfall may be diverted to the GWR Project, as influent for the AWT Facility or the modified SVRP. Table 4 shows the average flows to the ocean outfall during the period 2009-2013<sup>7</sup>.

**Table 4: Unused Secondary Treated Effluent**

Source \ Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Excess Effluent	1,785	1,219	1,141	420	88	49	27	34	114	859	1,314	1,175	8,225

### Proposed Project and CSIP Demands

The Proposed Project goal is to produce 3,500 AFY of highly treated (or purified recycled) water for injection in the Seaside Groundwater Basin to allow CalAm to extract the same amount for treatment and distribution to their customers in their Monterey District service area. To produce that volume, approximately 4,320 AFY of source water inflows are required at the Advanced Water Treatment Facility. During wet or normal water years, an additional 200 AFY may be produced and injected in the winter months to develop a drought reserve. This would require an additional 248 AFY of source water. The monthly distribution of this demand is shown in Table 5, below.

Source flows not required for the GWR Project would be made available to create additional recycled water for the CSIP. Table 5 includes an estimate of new source flows in excess of the AWT inflow needs, assuming seasonal storage of agricultural wash water (discussed below), year-round diversion of surface water, and AWT Facility demands for a normal year building a drought reserve.

The CSIP system distributes recycled water, Salinas River water and well water from the Salinas Valley Groundwater Basin to agricultural irrigation demands in the northern Salinas Valley. Well water is used to meet peak summer demands in excess of the supply available from the other sources, and also to meet low demands below the minimum production capacity of the SVRP (currently 5 MGD). Under the proposed project, the SVRP would be modified to meet recycled water demands as low as 0.5 MGD. This modification would allow the MCWRA to reduce the use of the CSIP wells, particularly in the winter months when secondary treated effluent is available. The average CSIP well use for the period

<sup>6</sup> Schaaf & Wheeler, (Revised Draft) Blanco Drain Yield Study, December 2014

<sup>7</sup> Data provided by Bob Holden, MRWPCA, February 2014.

2009-2013<sup>8</sup> is shown in Table 5. This provides a reasonable estimate of how much additional recycled water could be used by CSIP in average year conditions.

**Table 5: Monthly GWR and CSIP Use of New Supplies**

Use \ Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
GWR Demand	367	331	367	355	367	355	367	367	355	367	355	367	4,320
Drought Reserve	42	38	42							42	41	42	248
New Supplies in excess of AWT <sup>9</sup>	117	129	158	541	514	709	540	504	320	0	0	50	3,582
CSIP Wells Use	448	195	304	440	324	606	476	504	300	76	233	354	4,260

### Seasonal Storage at the SIWTF

To maximize the available supply during the peak irrigation months, the main ponds at the SIWTF would be used for seasonal storage of agricultural wash water and Salinas' urban stormwater. The analysis of source water yield and proposed diversions assumes that during the months of October through March, these flows would be directed to the SIWTF. In addition, for the source water assumptions, the use of the drying beds and infiltration basins would be discontinued, so the only losses would be evaporation and percolation from the main ponds. During the months of April through September, these flows would be diverted to the municipal wastewater collection system for recycling and injection into the Seaside Basin and tertiary treatment for CSIP. Stored water would also be pumped from the SIWTF ponds to the municipal wastewater collection system.

### Results of Source Water Availability Analysis

In the attached Table 6: Source Water Analysis, the monthly storage balance in the SIWTF ponds is calculated for a normal water year. The inflow, rainfall, evaporation and percolation from Table 1 are shown in rows 1, 3, 4 and 5, respectively. Urban Runoff from South Salinas is carried from Table 2 into row 2. Assuming the ponds are empty at the start of October, they would remain wet for nine months a year, maintaining the operational characteristics of the SIWTF and enabling continued contributions of seepage water to Salinas River flows and recharge to the Salinas Valley Groundwater Basin<sup>10</sup>. The net yield of agricultural wash water and Salinas stormwater for the Proposed Project is shown on line 8. Other source flows from Tables 2 and 3 are shown on lines 9 through 12, and the net new supply is shown on line 13. Line 16 shows the projected new supply to augment the CSIP area flows, and Line 23 shows the supply needed for the GWR Project while developing a drought reserve. Assuming the agencies divert all of the water shown on this table, there would still be approximately 6,400 AFY discharged through the ocean outfall (line 26) during normal rainfall years.

### Diversion and Use Scenarios

The MRWPCA has a goal of reusing 100% of the secondary treated municipal effluent at the RTP (i.e., having no discharge to the ocean), and operating the system as efficiently as possible to reduce the energy demand. Therefore, the Proposed Project would prioritize the use of secondary treated effluent above the diversion of surface water sources. The proposed priority of source usage is:

<sup>8</sup> Data from *Monterey County Water Recycling Projects/Salinas Valley Water Project/Salinas River Diversion Facility Update*, MCWRA Board Packet, February 24, 2014

<sup>9</sup> Excess supplies are calculated as the total of new water conveyed to the RTP (not including secondary treated effluent) minus the AWT Facility demand

<sup>10</sup> Full diversion of flows was analyzed in the report: *(Revised Draft) Groundwater Replenishment Project, Salinas River Inflow Impacts*

1. Unused secondary treated effluent
2. Agricultural wash water
3. Salinas storm water
4. Reclamation Ditch
5. Blanco Drain
6. Tembladero Slough
7. Lake El Estero

In the attached scenario tables, the use of the various sources is reduced to just meet the demands of the AWT Facility and offset the current CSIP groundwater use in the wet season (OCT-MAR). During the dry season (APR-SEP), surface water diversions are shown meeting the monthly AWT Facility demands and providing extra flow for the CSIP, such that the annual use of new sources equals the annual AWT Facility demands. In practice, the surface water diversions could be reduced or increased based on the actual CSIP system demands, up to the total yields shown in Table 6. The demand scenarios considered are:

Table 7: A normal water year while developing a drought reserve (AWT Facility producing 3,700 AFY)

Table 8: A normal water year with a full drought reserve (AWT Facility producing 3,500 AFY)

Table 9: A drought year starting with a full reserve (AWT Facility producing 2,700 AFY)

In the two normal year scenarios, surface water diversions were only required from the Reclamation Ditch and the Blanco Drain, and only between April and October.

In the drought year scenario, the stormwater and wastewater availability were reduced. Urban runoff from Salinas was assumed to be one-third of the historic average. Rainfall on the SIWTF ponds used the 2013 rainfall record (critically dry year). The unused secondary treated effluent values from 2013 were used, also the historic low. The CSIP groundwater well use from OCT 2013 to SEP 2014 was used as the CSIP augmentation target. Under this scenario, surface water diversions were required from the Reclamation Ditch, Blanco Drain and Tembladero Slough, and the diversions were needed from March through November.

References:

City of Salinas, Industrial Wastewater Treatment Facility, 2013 Annual Report, January 2014

Monterey County Water Resources Agency, *Monterey County Water Recycling Projects/Salinas Valley Water Project/Salinas River Diversion Facility Update*, MCWRA Board Packet, February 24, 2014

Monterey County Water Resources Agency, *Salinas Valley Water Project, Annual Flow Monitoring Reports for Water Years 2010 – 2013*.

Monterey County Water Resources Agency, Application to Appropriate Water, April 2014.

Monterey Peninsula Water Management District, *Source Water Spreadsheet Analysis, March, 2015*.

Schaaf & Wheeler, *(Revised Draft) Groundwater Replenishment Project, Urban Runoff Capture at Lake El Estero*, April 2014

Schaaf & Wheeler, *(Revised Draft) Blanco Drain Yield Study*, December 2014

Schaaf & Wheeler, *(Revised Draft) Groundwater Replenishment Project, Salinas River Inflow Impacts*, March 2015

Schaaf & Wheeler, *(Revised Draft) Reclamation Ditch Yield Study*, March 2015

Todd Groundwater, *(Draft) Memorandum: Pure Water Monterey Groundwater Replenishment Project: Impacts of Changes in Percolation at the Salinas Industrial Wastewater Treatment Facility on Groundwater and the Salinas River*, February 2015

Table 6: Source Water Analysis for the Pure Water Monterey Groundwater Replenishment Project

Full Surface Water Yields, Normal Water Year, Building a Drought Reserve

All facilities built <sup>1</sup> - average water year conditions - all flows in acre-feet													3/26/2015	
Source Water Available for Recycling		Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
City of Salinas														
1	Salinas Agricultural Wash Water <sup>2</sup>	156	158	201	307	311	391	435	444	367	410	329	223	3,732
	Agricultural Wash Water (AWW) to Ponds <sup>3</sup>	156	158	201	0	0	0	0	0	0	410	329	223	1,477
	AWW directly to RTP	0	0	0	307	311	391	435	444	367	0	0	0	2,255
2	Salinas Urban Storm Water Runoff <sup>4</sup>	52	41	34	16	2	0	0	0	2	8	23	47	225
	Urban runoff to ponds	52	41	34	0	0	0	0	0	0	8	23	47	205
	Urban runoff to RTP	0	0	0	16	2	0	0	0	2	0	0	0	20
3	Rainfall (on SIWTF, 121 acre pond area) <sup>5</sup>	26	24	21	11	3	1	0	0	2	6	14	24	132
4	Evaporation (from SIWTF, 121 acre pond area) <sup>6</sup>	(12)	(16)	(29)	(41)	(46)	(52)				(28)	(15)	(12)	(251)
5	Percolation <sup>7</sup>	(143)	(129)	(143)	(138)	(143)	(138)				(143)	(138)	(143)	(1,257)
6	SIWTF pond storage balance <sup>8</sup>	684	763	847	647	362	0	0	0	0	253	466	605	
7	Recovery of flow from SIWTF storage ponds to RTP	0	0	0	32	100	172	0	0	0	0	0	0	304
8	AWW and Salinas Runoff to RTP	0	0	0	355	413	563	435	444	369	0	0	0	2,579
Water Rights Applications to SWRCB														
9	Blanco Drain <sup>9</sup>	209	223	246	252	225	274	277	244	184	168	133	185	2,620
10	Reclamation Ditch at Davis Road <sup>10</sup>	162	143	165	162	97	132	129	121	80	87	98	146	1,522
11	Tembladero Slough at Castroville <sup>11</sup>	131	117	142	154	145	67	66	62	41	45	50	115	1,135
12	City of Monterey - Diversion at Lake El Estero	24	15	14	5	1	0	0	0	1	4	10	13	87
13	Subtotal New Waters Available	526	498	567	928	881	1,036	907	871	675	304	291	459	7,943
Use of Source Water		Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
14	Secondary effluent to SVRP <sup>12</sup>	448	195	304	0	0	0	0	0	0	76	233	354	1,610
15	New sources available to CSIP <sup>13</sup>	0	0	0	573	514	681	540	504	320	0	0	0	3,132
16	Amount to augment CSIP Area Flows	448	195	304	573	514	681	540	504	320	76	233	354	4,742
17	Surface waters at RTP to AWT	409	369	409	0	0	0	0	0	0	304	291	409	2,191
18	Secondary effluent to AWT	0	0	0	0	0	0	0	0	0	105	105	0	210
19	AWW and Salinas urban runoff to AWT	0	0	0	355	367	355	367	367	355	0	0	0	2,166
20	Feedwater to AWT	409	369	409	355	367	355	367	367	355	409	396	409	4,567
	Subtotal- all waters (including secondary effluent)	857	564	713	928	881	1,036	907	871	675	485	629	763	9,309
21	FEEDWATER AMOUNT AT RTP TO GWR PROJECT AWTF	367	331	367	355	367	355	367	367	355	367	355	367	4,320
22	FEEDWATER TO ESTABLISH CSIP AREA DROUGHT RESERVE (200 AFY AWTF PRODUCT WATER) <sup>14</sup>	42	38	42							42	41	42	248
23	TOTAL TO GWR ADVANCED WATER TREATMENT FACILITY	409	369	409	355	367	355	367	367	355	409	396	409	4,568
24	FIVE YEAR AVERAGE CSIP AREA WELL WATER USE (2009-2013)	448	195	304	440	324	606	476	504	300	76	233	354	4,260
25	FIVE YEAR AVERAGE WASTE WATER EFFLUENT TO OCEAN OUTFALL (2009-2013) <sup>15</sup>	1,785	1,219	1,141	420	88	49	27	34	114	859	1,314	1,175	8,225
26	WASTE WATER EFFLUENT TO OCEAN OUTFALL WITH PROPOSED DIVERSIONS TO CSIP/AWT <sup>16</sup>	1,337	1,024	837	420	88	49	27	34	114	678	976	821	6,405
27	NEW SUPPLIES IN EXCESS OF AWT DEMANDS <sup>17</sup>	117	129	158	573	514	681	540	504	320	0	0	50	3,586

Notes

1 Presumes all facilities associated with diversions are completed.

2 Table 2-1, p. 5, Schaaf & Wheeler Consulting Engineers. Revised Draft, Groundwater Replenishment Project, Salinas River Inflow Impacts, Prepared for Denise Duffy & Associates, February 2015.

3 Volume of effluent from City of Salinas agricultural wash water to be directed into ponds 1,2,3, and the aeration pond for storage.

4 Average monthly flow from Revised Draft, Groundwater Replenishment Project, Salinas River Inflow Impacts, Prepared for Denise Duffy & Associates, February 2015.

5 Rainfall from Revised Draft, Groundwater Replenishment Project, Salinas River Inflow Impacts, Prepared for Denise Duffy & Associates, February 2015. Pond area presumed to be Ponds 1,2, 3 + Aeration lagoon. No rainfall/evaporation or storage assigned to drying beds.

6 Table 3, Todd Groundwater, Draft Memorandum, Pure Water Monterey Groundwater Replenishment Project: Impacts of Changes in Percolation at the Salinas Industrial Wastewater Treatment Facility on Groundwater and the Salinas River, February 11, 2015.

7 Table 4, Ibid.

8 Ponds 1,2,3 and aeration basin hold up to 1,065 acre-feet (one foot of freeboard). If flow to ponds would exceed the maximum volume, it is presumed that excess flow can be diverted to the RIBs or drying beds or flow can be diverted to the RTP. Presume that pond storage goes to zero sometime during the year (shown here starting in July).

9 Max diversion = 6 cfs diversion. See REVISED DRAFT BLANCO DRAIN YIELD STUDY, Schaaf and Wheeler, December 2014.

10 Max. diversion = 6 cfs. See REVISED DRAFT RECLAMATION DITCH YIELD STUDY, Schaaf and Wheeler, March 2015. Note that flow figures shown here are a combination of flow estimates in the S&W analysis made for the 2 cfs instream requirement Jan-May and 1 cfs instream requirement for June-Dec.

11 Max. diversion = 3 cfs. See REVISED DRAFT RECLAMATION DITCH YIELD STUDY, Schaaf and Wheeler, March 2015. Figures shown here are the difference between the combined Davis Road/TS diverison with Seasonal Bypass. This presumes the preference is to remove flow at Davis Road first, rather than bypass flow to Tembaldero Slough.

12 Unused secondary effluent waste water currently discharged to Monterey Bay would be used in conjunction with improvements at the RTP to provide additional flow to the Salinas Valley Reclamation Project (SVRP) during periods of low demand (i.e., < 5 mgd).

13 New source waters not used by AWT in the summer months will be available to SVRP for CSIP.

14 A drought reserve of up to 1,000 AF would be created over five years by producing 200 AFY additional product water from the GWR Project AWTF during winter months and storing the water in the Seaside Basin. This would establish a "water bank" that the CSIP can draw on in droughts. The drought reserve would allow flow at the RTP for the GWR Project to be temporarily reduced during critically dry periods, thus freeing up more of the newly available inflows to the RTP to be sent to the CSIP area. Extraction from the Seaside Basin would continue at the average rate to supply the Monterey Peninsula.

15 Average monthly RTP discharge, 2009-2013 (reported by MRWPCA).

16 Secondary treated municipal effluent not used for SVRP/CSIP or the AWT.

17 Excess is calculated as Line 13 minus Line 23

Table 7: Source Water Analysis for the Pure Water Monterey Groundwater Replenishment Project

Diversion Pattern for a Normal Water Year, Building a Drought Reserve

All facilities built <sup>1</sup> - average water year conditions - all flows in acre-feet													3/26/2015	
Source Water Available for Recycling		Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
City of Salinas														
1	Salinas Agricultural Wash Water <sup>2</sup>	156	158	201	307	311	391	435	444	367	410	329	223	3,732
	Agricultural Wash Water (AWW) to Ponds <sup>3</sup>	156	158	201	0	0	0	0	0	0	410	329	223	1,477
	AWW directly to RTP	0	0	0	307	311	391	435	444	367	0	0	0	2,255
2	Salinas Urban Storm Water Runoff <sup>4</sup>	52	41	34	16	2	0	0	0	2	8	23	47	225
	Urban runoff to ponds	52	41	34	0	0	0	0	0	0	8	23	47	205
	Urban runoff to RTP	0	0	0	16	2	0	0	0	2	0	0	0	20
3	Rainfall (on SIWTF, 121 acre pond area) <sup>5</sup>	26	24	21	11	3	1	0	0	2	6	14	24	132
4	Evaporation (from SIWTF, 121 acre pond area) <sup>6</sup>	(12)	(16)	(29)	(41)	(46)	(52)				(28)	(15)	(12)	(251)
5	Percolation <sup>7</sup>	(143)	(129)	(143)	(138)	(143)	(138)				(143)	(138)	(143)	(1,257)
6	SIWTF pond storage balance <sup>8</sup>	684	763	847	647	362	0	0	0	0	253	466	605	
7	Recovery of flow from SIWTF storage ponds to RTP	0	0	0	32	100	172	0	0	0	0	0	0	304
8	AWW and Salinas Runoff to RTP	0	0	0	355	413	563	435	444	369	0	0	0	2,579
Water Rights Applications to SWRCB														
9	Blanco Drain <sup>9</sup>	0	0	0	64	225	274	277	244	184	0	0	0	1,268
10	Reclamation Ditch at Davis Road <sup>10</sup>	0	0	0	162	97	132	129	121	80	0	0	0	721
11	Tembladero Slough at Castroville <sup>11</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0
12	City of Monterey - Diversion at Lake El Estero	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Subtotal New Waters Available	0	0	0	581	735	969	841	809	633	0	0	0	4,568
Use of Source Water		Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
14	Scndary effluent to SVRP <sup>12, 17</sup>	448	195	304	420	88	49	27	34	114	76	233	354	2,342
15	New sources available to CSIP <sup>13</sup>	0	0	0	226	368	614	474	442	278	0	0	0	2,402
16	Amount to augment CSIP Area Flows	448	195	304	646	456	663	501	476	392	76	233	354	4,744
17	Surface waters at RTP to AWT	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Secondary effluent to AWT	409	369	409	0	0	0	0	0	0	409	396	409	2,401
19	AWW and Salinas urban runoff to AWT	0	0	0	355	367	355	367	367	355	0	0	0	2,166
20	Feedwater to AWT	409	369	409	355	367	355	367	367	355	409	396	409	4,567
	Subtotal- all waters (including secondary effluent)	857	564	713	1,001	823	1,018	868	843	747	485	629	763	9,311
21	FEEDWATER AMOUNT AT RTP TO GWR PROJECT AWTF	367	331	367	355	367	355	367	367	355	367	355	367	4,320
22	FEEDWATER TO ESTABLISH CSIP AREA DROUGHT RESERVE (200 AFY AWTF PRODUCT WATER) <sup>14</sup>	42	38	42							42	41	42	248
23	TOTAL TO GWR ADVANCED WATER TREATMENT FACILITY	409	369	409	355	367	355	367	367	355	409	396	409	4,568
24	FIVE YEAR AVERAGE CSIP AREA WELL WATER USE (2009-2013)	448	195	304	440	324	606	476	504	300	76	233	354	4,260
25	FIVE YEAR AVERAGE WASTE WATER EFFLUENT TO OCEAN OUTFALL (2009-2013) <sup>15</sup>	1,785	1,219	1,141	420	88	49	27	34	114	859	1,314	1,175	8,225
26	WASTE WATER EFFLUENT TO OCEAN OUTFALL WITH PROPOSED DIVERSIONS TO CSIP/AWT <sup>16</sup>	928	655	428	0	0	0	0	0	0	374	685	412	3,482

Notes

1 Presumes all facilities associated with diversions are completed.

2 Table 2-1, p. 5, Schaaf & Wheeler Consulting Engineers. Revised Draft, Groundwater Replenishment Project, Salinas River Inflow Impacts, Prepared for Denise Duffy & Associates, February 2015.

3 Volume of effluent from City of Salinas agricultural wash water to be directed into ponds 1,2,3, and the aeration pond for storage.

4 Average monthly flow from Revised Draft, Groundwater Replenishment Project, Salinas River Inflow Impacts, Prepared for Denise Duffy & Associates, February 2015.

5 Rainfall from Revised Draft, Groundwater Replenishment Project, Salinas River Inflow Impacts, Prepared for Denise Duffy & Associates, February 2015. Pond area presumed to be Ponds 1,2, 3 + Aeration lagoon. No rainfall/evaporation or storage assigned to drying beds.

6 Table 3, Todd Groundwater, Draft Memorandum, Pure Water Monterey Groundwater Replenishment Project: Impacts of Changes in Percolation at the Salinas Industrial Wastewater Treatment Facility on Groundwater and the Salinas River, February 11, 2015.

7 Table 4, Ibid.

8 Ponds 1,2,3 and aeration basin hold up to 1,065 acre-feet (one foot of freeboard). If flow to ponds would exceed the maximum volume, it is presumed that excess flow can be diverted to the RIBs or drying beds or flow can be diverted to the RTP. Presume that pond storage goes to zero sometime during the year (shown here starting in July).

9 Max diversion = 6 cfs diversion. See REVISED DRAFT BLANCO DRAIN YIELD STUDY, Schaaf and Wheeler, December 2014.

10 Max. diversion = 6 cfs. See REVISED DRAFT RECLAMATION DITCH YIELD STUDY, Schaaf and Wheeler, March 2015. Note that flow figures shown here are a combination of flow estimates in the S&W analysis made for the 2 cfs instream requirement Jan-May and 1 cfs instream requirement for June-Dec.

11 Max. diversion = 3 cfs. See REVISED DRAFT RECLAMATION DITCH YIELD STUDY, Schaaf and Wheeler, March 2015. Figures shown here are the difference between the combined Davis Road/TS diverison with Seasonal Bypass. This presumes the preference is to remove flow at Davis Road first, rather than bypass flow to Tembaldero Slough.

12 Unused secondary effluent waste water currently discharged to Monterey Bay would be used in conjunction with improvements at the RTP to provide additional flow to the Salinas Valley Reclamation Project (SVRP) during periods of low demand (i.e., < 5 mgd).

13 New source waters not used by AWT in the summer months will be available to SVRP for CSIP.

14 A drought reserve of up to 1,000 AF would be created over five years by producing 200 AFY additional product water from the GWR Project AWTF during winter months and storing the water in the Seaside Basin. This would establish a "water bank" that the CSIP can draw on in droughts. The drought reserve would allow flow at the RTP for the GWR Project to be temporarily reduced during critically dry periods, thus freeing up more of the newly available inflows to the RTP to be sent to the CSIP area. Extraction from the Seaside Basin would continue at the average rate to supply the Monterey Peninsula.

15 Average monthly RTP discharge, 2009-2013 (reported by MRWPCA).

16 Secondary treated municipal effluent not used for SVRP/CSIP or the AWT.

17 Assume all unused secondary effluent is used by SVRP/CSIP in APR-SEP

Table 8: Source Water Analysis for the Pure Water Monterey Groundwater Replenishment Project

Diversion Pattern for a Normal Water Year when the Drought Reserve is Full

All facilities built <sup>1</sup> - average water year conditions - all flows in acre-feet													3/26/2015	
Source Water Available for Recycling		Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
City of Salinas														
1	Salinas Agricultural Wash Water <sup>2</sup>	156	158	201	307	311	391	435	444	367	410	329	223	3,732
	Agricultural Wash Water (AWW) to Ponds <sup>3</sup>	156	158	201	0	0	0	0	0	0	410	329	223	1,477
	AWW directly to RTP	0	0	0	307	311	391	435	444	367	0	0	0	2,255
2	Salinas Urban Storm Water Runoff <sup>4</sup>	52	41	34	16	2	0	0	0	2	8	23	47	225
	Urban runoff to ponds	52	41	34	0	0	0	0	0	0	8	23	47	205
	Urban runoff to RTP	0	0	0	16	2	0	0	0	2	0	0	0	20
3	Rainfall (on SIWTF, 121 acre pond area) <sup>5</sup>	26	24	21	11	3	1	0	0	2	6	14	24	132
4	Evaporation (from SIWTF, 121 acre pond area) <sup>6</sup>	(12)	(16)	(29)	(41)	(46)	(52)				(28)	(15)	(12)	(251)
5	Percolation <sup>7</sup>	(143)	(129)	(143)	(138)	(143)	(138)				(143)	(138)	(143)	(1,257)
6	SIWTF pond storage balance <sup>8</sup>	684	763	847	647	362	0	0	0	0	253	466	605	
7	Recovery of flow from SIWTF storage ponds to RTP	0	0	0	32	100	172	0	0	0	0	0	0	304
8	AWW and Salinas Runoff to RTP	0	0	0	355	413	563	435	444	369	0	0	0	2,579
Water Rights Applications to SWRCB														
9	Blanco Drain <sup>9</sup>	0	0	0	161	153	189	152	173	192	0	0	0	1,020
10	Reclamation Ditch at Davis Road <sup>10</sup>	0	0	0	162	97	132	129	121	80	0	0	0	721
11	Tembladero Slough at Castroville <sup>11</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0
12	City of Monterey - Diversion at Lake El Estero	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Subtotal New Waters Available	0	0	0	678	663	884	716	738	641	0	0	0	4,320
Use of Source Water		Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
14	Scndary effluent to SVRP <sup>12</sup>	448	195	304	420	88	49	27	34	114	76	233	354	2,342
15	New sources available to CSIP <sup>13</sup>	0	0	0	323	296	529	349	371	286	0	0	0	2,154
16	Amount to augment CSIP Area Flows	448	195	304	743	384	578	376	405	400	76	233	354	4,496
17	Surface waters at RTP to AWT	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Secondary effluent to AWT	367	331	367	0	0	0	0	0	0	367	355	367	2,154
19	AWW and Salinas urban runoff to AWT	0	0	0	355	367	355	367	367	355	0	0	0	2,166
20	Feedwater to AWT	367	331	367	355	367	355	367	367	355	367	355	367	4,320
	Subtotal- all waters (including secondary effluent)	815	526	671	1,098	751	933	743	772	755	443	588	721	8,816
21	FEEDWATER AMOUNT AT RTP TO GWR PROJECT AWTF	367	331	367	355	367	355	367	367	355	367	355	367	4,320
22	FEEDWATER TO ESTABLISH CSIP AREA DROUGHT RESERVE (200 AFY AWTF PRODUCT WATER) <sup>14</sup>	0	0	0							0	0	0	0
23	TOTAL TO GWR ADVANCED WATER TREATMENT FACILITY	367	331	367	355	367	355	367	367	355	367	355	367	4,320
24	FIVE YEAR AVERAGE CSIP AREA WELL WATER USE (2009-2013)	448	195	304	440	324	606	476	504	300	76	233	354	4,260
25	FIVE YEAR AVERAGE WASTE WATER EFFLUENT TO OCEAN OUTFALL (2009-2013) <sup>15</sup>	1,785	1,219	1,141	420	88	49	27	34	114	859	1,314	1,175	8,225
26	WASTE WATER EFFLUENT TO OCEAN OUTFALL WITH PROPOSED DIVERSIONS TO CSIP/AWT <sup>16</sup>	970	693	470	0	0	0	0	0	0	416	726	454	3,729

Notes

1 Presumes all facilities associated with diversions are completed.

2 Table 2-1, p. 5, Schaaf & Wheeler Consulting Engineers. Revised Draft, Groundwater Replenishment Project, Salinas River Inflow Impacts, Prepared for Denise Duffy & Associates, February 2015.

3 Volume of effluent from City of Salinas agricultural wash water to be directed into ponds 1,2,3, and the aeration pond for storage.

4 Average monthly flow from Revised Draft, Groundwater Replenishment Project, Salinas River Inflow Impacts, Prepared for Denise Duffy & Associates, February 2015.

5 Rainfall from Revised Draft, Groundwater Replenishment Project, Salinas River Inflow Impacts, Prepared for Denise Duffy & Associates, February 2015. Pond area presumed to be Ponds 1,2, 3 + Aeration lagoon. No rainfall/evaporation or storage assigned to drying beds.

6 Table 3, Todd Groundwater, Draft Memorandum, Pure Water Monterey Groundwater Replenishment Project: Impacts of Changes in Percolation at the Salinas Industrial Wastewater Treatment Facility on Groundwater and the Salinas River, February 11, 2015.

7 Table 4, Ibid.

8 Ponds 1,2,3 and aeration basin hold up to 1,065 acre-feet (one foot of freeboard). If flow to ponds would exceed the maximum volume, it is presumed that excess flow can be diverted to the RIBs or drying beds or flow can be diverted to the RTP. Presume that pond storage goes to zero sometime during the year (shown here starting in July).

9 Max diversion = 6 cfs diversion. See REVISED DRAFT BLANCO DRAIN YIELD STUDY, Schaaf and Wheeler, December 2014.

10 Max. diversion = 6 cfs. See REVISED DRAFT RECLAMATION DITCH YIELD STUDY, Schaaf and Wheeler, March 2015. Note that flow figures shown here are a combination of flow estimates in the S&W analysis made for the 2 cfs instream requirement Jan-May and 1 cfs instream requirement for June-Dec.

11 Max. diversion = 3 cfs. See REVISED DRAFT RECLAMATION DITCH YIELD STUDY, Schaaf and Wheeler, March 2015. Figures shown here are the difference between the combined Davis Road/TS diverison with Seasonal Bypass. This presumes the preference is to remove flow at Davis Road first, rather than bypass flow to Tembaldero Slough.

12 Unused secondary effluent waste water currently discharged to Monterey Bay would be used in conjunction with improvements at the RTP to provide additional flow to the Salinas Valley Reclamation Project (SVRP) during periods of low demand (i.e., < 5 mgd).

13 New source waters not used by AWT in the summer months will be available to SVRP for CSIP.

14 A drought reserve of up to 1,000 AF would be created over five years by producing 200 AFY additional product water from the GWR Project AWTF during winter months and storing the water in the Seaside Basin. This would establish a "water bank" that the CSIP can draw on in droughts. The drought reserve would allow flow at the RTP for the GWR Project to be temporarily reduced during critically dry periods, thus freeing up more of the newly available inflows to the RTP to be sent to the CSIP area. Extraction from the Seaside Basin would continue at the average rate to supply the Monterey Peninsula.

15 Average monthly RTP discharge, 2009-2013 (reported by MRWPCA).

16 Secondary treated municpal effluent not used for SVRP/CSIP or the AWT.

Table 9: Source Water Analysis for the Pure Water Monterey Groundwater Replenishment Project

Diversion Pattern for a Drought Year Starting with a Full Drought Reserve

All facilities built <sup>1</sup> - average water year conditions - all flows in acre-feet													3/26/2015	
Source Water Available for Recycling		Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
City of Salinas														
1	Salinas Agricultural Wash Water <sup>2</sup>	156	158	201	307	311	391	435	444	367	410	329	223	3,732
	Agricultural Wash Water (AWW) to Ponds <sup>3</sup>	156	158	201	0	0	0	0	0	0	410	329	223	1,477
	AWW directly to RTP	0	0	0	307	311	391	435	444	367	0	0	0	2,255
2	Salinas Urban Storm Water Runoff, 1/3 Average <sup>4</sup>	17	14	11	5	1	0	0	0	1	3	8	16	76
	Urban runoff to ponds	17	14	11	0	0	0	0	0	0	3	8	16	69
	Urban runoff to RTP	0	0	0	5	1	0	0	0	1	0	0	0	7
3	Rainfall (Year 2013 rate on SIWTF, 121 acre pond area) <sup>5</sup>	11	6	4	3	0	0	0	0	1	2	5	4	36
4	Evaporation (from SIWTF, 121 acre pond area) <sup>6</sup>	(12)	(16)	(29)	(41)	(46)	(52)				(28)	(15)	(12)	(251)
5	Percolation <sup>7</sup>	(143)	(129)	(143)	(138)	(143)	(138)				(143)	(138)	(143)	(1,257)
6	SIWTF pond storage balance <sup>8</sup>	550	584	628	452	163	(27)	0	0	0	245	433	521	
7	Recovery of flow from SIWTF storage ponds to RTP	0	0	0	0	100	0	0	0	0	0	0	0	100
8	AWW and Salinas Runoff to RTP	0	0	0	312	412	391	435	444	368	0	0	0	2,362
Water Rights Applications to SWRCB														
9	Blanco Drain <sup>9</sup>	0	0	246	252	225	274	277	244	184	168	133	0	2,003
10	Reclamation Ditch at Davis Road <sup>10</sup>	0	0	165	162	97	132	129	121	80	87	98	0	1,071
11	Tembladero Slough at Castroville <sup>11</sup>	0	0	132	154	145	67	66	62	41	45	50	0	762
12	City of Monterey - Diversion at Lake El Estero	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Subtotal New Waters Available	0	0	543	880	879	864	907	871	673	300	281	0	6,198
Use of Source Water		Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
14	Scondary effluent to SVRP <sup>12</sup>	509	9	87	0	0	0	0	0	0	75	35	730	1,445
15	New sources available to CSIP <sup>13</sup>	0	0	176	747	742	731	770	734	540	0	0	0	4,441
16	Amount to augment CSIP Area Flows	509	9	263	747	742	731	770	734	540	75	35	730	5,886
17	Surface waters at RTP to AWT	0	0	367	0	0	0	0	0	0	300	281	0	948
18	Secondary effluent to AWT	367	331	0	0	0	0	0	0	0	67	74	367	1,206
19	AWW and Salinas urban runoff to AWT	0	0	0	133	137	133	137	137	133	0	0	0	809
20	Feedwater to AWT	367	331	367	133	137	133	137	137	133	367	355	367	2,963
	Subtotal- all waters (including secondary effluent)	876	340	630	880	879	864	907	871	673	442	390	1,097	8,849
21	FEEDWATER AMOUNT AT RTP TO GWR PROJECT AWTF	367	331	367	133	137	133	137	137	133	367	355	367	2,963
22	FEEDWATER TO ESTABLISH CSIP AREA DROUGHT RESERVE (200 AFY AWTF PRODUCT WATER) <sup>14</sup>	0	0	0							0	0	0	0
23	TOTAL TO GWR ADVANCED WATER TREATMENT FACILITY	367	331	367	133	137	133	137	137	133	367	355	367	2,963
24	PEAK CSIP WELL WATER USE (OCT 2013-SEP2014)	509	9	221	242	1,197	1,261	1,303	1,025	453	165	35	730	7,150
25	DRY YEAR WASTEWATER EFFLUENT TO OCEAN OUTFALL (2013) <sup>15</sup>	1,725	802	87	0	0	0	0	0	0	142	507	1,607	4,870
26	WASTE WATER EFFLUENT TO OCEAN OUTFALL WITH PROPOSED DIVERSIONS TO CSIP/AWT <sup>16</sup>	849	462	0	0	0	0	0	0	0	(0)	398	510	2,219

Notes

1 Presumes all facilities associated with diversions are completed.

2 Table 2-1, p. 5, Schaaf & Wheeler Consulting Engineers. Revised Draft, Groundwater Replenishment Project, Salinas River Inflow Impacts, Prepared for Denise Duffy & Associates, February 2015.

3 Volume of effluent from City of Salinas agricultural wash water to be directed into ponds 1,2,3, and the aeration pond for storage.

4 Assume dry year at 1/3 the average monthly values from Revised Draft, Groundwater Replenishment Project, Salinas River Inflow Impacts, Prepared for Denise Duffy & Associates, February 2015.

5 Rainfall from Revised Draft, Groundwater Replenishment Project, Salinas River Inflow Impacts, Prepared for Denise Duffy & Associates, February 2015. Pond area presumed to be Ponds 1,2, 3 + Aeration lagoon. No rainfall/evaporation or storage assigned to drying beds.

6 Table 3, Todd Groundwater, Draft Memorandum, Pure Water Monterey Groundwater Replenishment Project: Impacts of Changes in Percolation at the Salinas Industrial Wastewater Treatment Facility on Groundwater and the Salinas River, February 11, 2015.

7 Table 4, Ibid.

8 Ponds 1,2,3 and aeration basin hold up to 1,065 acre-feet (one foot of freeboard). If flow to ponds would exceed the maximum volume, it is presumed that excess flow can be diverted to the RIBs or drying beds or flow can be diverted to the RTP. Presume that pond storage goes to zero sometime during the year (shown here starting in July).

9 Max diversion = 6 cfs diversion. See REVISED DRAFT BLANCO DRAIN YIELD STUDY, Schaaf and Wheeler, December 2014.

10 Max. diversion = 6 cfs. See REVISED DRAFT RECLAMATION DITCH YIELD STUDY, Schaaf and Wheeler, March 2015. Note that flow figures shown here are a combination of flow estimates in the S&W analysis made for the 2 cfs instream requirement Jan-May and 1 cfs instream requirement for June-Dec.

11 Max. diversion = 3 cfs. See REVISED DRAFT RECLAMATION DITCH YIELD STUDY, Schaaf and Wheeler, March 2015. Figures shown here are the difference between the combined Davis Road/TS diverison with Seasonal Bypass. This presumes the preference is to remove flow at Davis Road first, rather than bypass flow to Tembaldero Slough.

12 Unused secondary effluent waste water currently discharged to Monterey Bay would be used in conjunction with improvements at the RTP to provide additional flow to the Salinas Valley Reclamation Project (SVRP) during periods of low demand (i.e., < 5 mgd).

13 New source waters not used by AWT in the summer months will be available to SVRP for CSIP.

14 A drought reserve of up to 1,000 AF would be created over five years by producing 200 AFY additional product water from the GWR Project AWTF during winter months and storing the water in the Seaside Basin. This would establish a "water bank" that the CSIP can draw on in droughts. The drought reserve would allow flow at the RTP for the GWR Project to be temporarily reduced during critically dry periods, thus freeing up more of the newly available inflows to the RTP to be sent to the CSIP area. Extraction from the Seaside Basin would continue at the average rate to supply the Monterey Peninsula.

15 Monthly RTP discharge during critically dry year, 2013 (reported by MRWPCA).

16 Secondary treated municipal effluent not used for SVRP/CSIP or the AWT.

## **MEMORANDUM OF UNDERSTANDING REGARDING SOURCE WATERS AND WATER RECYCLING**

**THIS MEMORANDUM OF UNDERSTANDING** (“MOU”) is made this 8th day of October 2014, by and between Monterey Regional Water Pollution Control Agency, the Monterey County Water Resources Agency, the City of Salinas, the Marina Coast Water District, and Monterey Peninsula Water Management District, collectively the “Parties.”

The Monterey Regional Water Pollution Control Agency (“PCA”) was formed as a California Joint Powers Agency by a Joint Exercise of Powers Agreement for the Monterey Regional Water Pollution Control Agency, effective June 29, 1979. The Monterey County Water Resources Agency (“WRA”) was established in 1995 pursuant to the Monterey County Water Resources Agency Act. The City of Salinas (“Salinas”) is a California charter city and municipal corporation. The Marina Coast Water District (“MCWD”) is a county water district established in 1960 pursuant to Water Code §§30000, *et seq.* The Monterey Peninsula Water Management District (“MPWMD”) was established in 1977 as a California special district pursuant to the Monterey Peninsula Water Management District Law (Chapter 527 of the Statutes of 1977, as amended, found at Water Code Appendix (Water C. App.) §§118-1, *et. seq.*)

### **WITNESSETH:**

**WHEREAS**, PCA entered into an Annexation Agreement, dated April 25, 1989, with MCWD providing, among other things, annexation of MCWD and for it to become a member entity of MRWPCA; and,

**WHEREAS**, the Annexation Agreement between PCA and MCWD provides MCWD a water right entitlement equal, as a minimum, to the “volume of MCWD wastewater treated by PCA”; and,

**WHEREAS**, PCA entered into an agreement with WRA, dated June 16, 1992, for construction and operation of a tertiary treatment system (the “1992 Agreement”), with subsequent amendments thereto, as follows: Amendment No. 1 on May 30, 1994; Amendment No. 2 on February 16, 1998; and, Amendment No. 3 on May 28, 2002; and,

**WHEREAS**, the 1992 Agreement, as amended, caused WRA to finance \$29,763,849.56 in tertiary treatment and related facilities; and,

**WHEREAS**, PCA and Monterey Peninsula Water Management District on May 20, 2013 entered into a Cost Sharing Agreement for the planning and development of the Pure Water Monterey Groundwater Replenishment (“GWR”) Project for the advanced treatment and recycling of a variety of source waters for indirect potable reuse;

**NOW, THEREFORE**, for and in reliance on the foregoing, the Parties hereby agree to negotiate a Definitive Agreement to establish contractual rights and obligations of all Parties, containing, as a minimum, the following provisions:

1. Protection of MCWD’s Recycled Water Right Entitlement

- a. Reaffirmation by PCA of MCWD’s recycled water right entitlement granted to MCWD pursuant to Paragraph 12 of the April 25, 1989 Annexation Agreement between PCA and MCWD.
- b. Reaffirmation that MCWD’s recycled water right is the senior right.
- c. MCWD, in use of its recycled water entitlement, will comply with all applicable requirements set forth in Contract No. 5-07-20-W1284, between the Bureau of Reclamation and WRA including, but not limited to, those contained in Paragraphs 10b and 10c, all at MCWD’s sole cost and expense.
- d. MCWD’s recycled water right entitlement may be made contractually available by MCWD to another Party and may be made available to WRA for CSIP if not utilized by MCWD, or its assignee, in any given year.

2. Provision of Recycled Water to WRA

- a. WRA to be supplied recycled water during the agricultural growing season in a minimum volume equal to the wastewater flows to the Regional Treatment Plant from all existing PCA members, plus treated waters originating from a variety of newly identified additional “incremental” and interruptible sources described in Section 3.a. hereof, subject to the provisions of Section 3.a.iii.
- b. The cost of primary and secondary treatment of Salinas agricultural wash water, estimated at \$179/acre-foot in 2014, to be paid to PCA by Salinas, the future rates for which to be established pursuant to Section 3(o) hereof.
- c. The cost of tertiary treatment of agricultural wash water to be paid to PCA by WRA, the future rates for which will be established by a protocol to be set forth in the Definitive Agreement.

### 3. Phase I – GWR Project Water and CSIP Area Additional Water

- a. Phase I to provide water from newly identified sources that are “incremental” additions over and above the incoming wastewater flows as identified in the 1992 Agreement, which consists of Salinas agricultural wash water, Salinas stormwater, all recoverable Reclamation Ditch water diverted at Davis Road, a portion of Tembladero Slough water diverted at Castroville, all recoverable Blanco Drain water, Lake El Estero stormwater, and reoperation of the Salinas ponds to store winter flows for summer use. Such waters may also include additional stormwater from other locations on the Monterey Peninsula. Phase I includes both (a) improvements to the SVRP in order to provide winter water to offset pumping at CSIP (contingent upon WRA completing hydraulic modifications to the existing CSIP system), and (b) treatment of wastewater from the Regional Treatment Plant that has been determined to be excess and not processed by the SVRP, provided, however, that PCA not curtail SVRP operations to produce said excess water, but in both cases such sources are not considered “incremental” additions.
  - i. Projected annual amounts are 4,320 acre-feet for GWR Project, and 5,292 acre-feet for CSIP Area Replacement Water, and 248 acre-feet GWR to be held in drought reserve. These are approximate amounts based on average year conditions, but actual amounts will vary annually;
  - ii. Projected costs of Phase I water are to be defined in the Definitive Agreement, consistent with Sections 3(k) and 3(l) below and subject to third party review as discussed in “Miscellaneous” below;
  - iii. Except for the commitments under Section 3.j. below, the Parties agree that Salinas agricultural wash water may be utilized by PCA for the time period necessary for an average annual amount of 4,320 acre-feet for the GWR Project to be achieved from Phase I Additional Sources. However, PCA is obligated to endeavor to develop the additional supplies identified under Section 3.a. and transition a portion of the agricultural wash water for the benefit of CSIP and WRA.

- iv. The Definitive Agreement to only apply to wastewater from existing PCA members and derived from the PCA's 2001 Service Area and water sources identified in Sections 3.a. and 3.q. Any future additions or annexations to the PCA Service Area or future sources outside of the 2001 Service Area will be subject to future agreement(s).
- b. Phase I to be operational in 2017, but the Parties will adjust schedule for construction and operation if and as needed.
- c. WRA's participation in Phase I to be contingent upon its successful completion of the Proposition 218 process, if applicable.
- d. In 2014 WRA filed an application with the State Water Resources Control Board ("SWRCB") for water rights to appropriate waters of the Blanco Drain for the purpose of providing additional waters for CSIP and for domestic supplies within the Salinas River Valley; and, for water rights to appropriate waters of the Reclamation Ditch and Tembladero Slough for the purpose of providing additional waters for CSIP and for domestic supplies within the Salinas River Valley. The Parties agree that such water rights shall be retained exclusively by WRA. The Parties to pay pro rata all costs associated with WRA's procurement and retention of Blanco Drain, Tembladero Slough, and Reclamation Ditch water rights. The Parties agree to work jointly on obtaining the water rights. The Parties may agree to apply for water rights in increments to facilitate issuance of permits.
- e. CSIP participants to be separately responsible for the tertiary treatment costs of the water processed and delivered through the SVRP. GWR participants to be separately responsible for the costs of advanced water treatment through the GWR facilities.
- f. The Parties to work cooperatively and collaboratively among themselves, in good faith, to determine appropriate crop irrigation water quality standards for water supplies.
- g. The Parties to work cooperatively and collaboratively among themselves, in good faith, to determine if, when, and how much of each water will be collected and sent to the RTP for treatment.

- h. Excess flows to be made available to each other Party, as may be desired. “Excess flows” to be defined in the Definitive Agreement, but are generally accepted to mean waters available for treatment at the SVRP or GWR facilities, but not desired by the project participants to be processed and delivered at that period of time.
- i. PCA to have rights to the first 4,320 acre-feet annually of the new “incremental” waters defined under Section 3.a. above, plus amounts in the six winter months to produce 200 acre-feet to be placed in drought reserve. WRA can request that PCA schedule withdrawals from the drought reserve in lieu of processing the incremental waters in order to make a like amount available to CSIP in time of need. Withdrawals will be limited to no more than the amount on deposit in the drought reserve.
- j. WRA to receive the agricultural wash water on terms similar to the *Produce Wash Water Agreement, dated 1 July 2014*, in 2015, 2016, and 2017 and until the GWR project becomes operational.
- k. PCA, at its cost and expense, to use its consultant to prepare a comprehensive rate analysis, to devise appropriate Interruptible Rates that will likely be less expensive than current non-Interruptible Rates for pumping, odor control, primary and secondary treatment. Separate Interruptible Rates to apply to each water source, but each separate Interruptible Rate to be subject to future escalation consistent with standard factors for operation and maintenance inflation over time. WRA will not pay rates for water it does not receive.
- l. Capital costs to be shared by PCA and WRA proportional to the waters projected to be made available on an average annual basis. Fixed pro rata capital costs to be paid annually by the Parties, irrespective of water requested or received. However, the calculation of pro rata shares of capital costs to be based only upon facilities actually built and average annual water expected to be made available vis the constructed facilities. In recognition of potential, yet undetermined, benefits of the existing operations of the Salinas Industrial Ponds to the recharge of the groundwater basin and the Salinas River for purposes of calculating water made available to CSIP 33% of the water attributable to the Salinas agricultural wash water would not be counted in the calculation of the proportional cost to WRA. Annual recovery of fixed capital costs to include any annual capitalized costs for facilities leased by PCA for the furnishing of water to the Parties.

- m. PCA subject to concurrence by the rate study to waive all capacity charges for use of water on an Interruptible basis from presently identified water sources to be included in Phase I or Phase II.
- n. Pursuant to subsequent agreement and lease, PCA and Salinas to negotiate a separate agreement and lease and develop a seasonal working protocol for diversion of Salinas Industrial Ponds (Agricultural Wash Water) and storm water as allowed by available storage. PCA to pay Salinas an annual lease payment to be recovered in the cost of water in accord with criteria to be established in the Definitive Agreement.
- o. PCA, if it uses tertiary treated water for the GWR Project, to comply with all applicable requirements set forth in Contract No. 5-07-20-W1284, between the Bureau of Reclamation and WRA including, but not limited to, those contained in Paragraphs 10b and 10c, all at PCA's sole cost and expense.

#### Phase II – CSIP Area Additional Water

- p. Phase II to provide water from newly identified sources that are “incremental” additions over and above the incoming wastewater flows as identified in the 1992 Agreement, as amended, and may consist of diversion of remaining Tembladero Slough water, potential future advanced treated water, and UniKool water.
- q. Phase II to approximate up to 3,754 AFA of new water.
- r. Phase II to be operational by 2022.
- s. Projected costs of Phase II will be determined in the future, consistent with engineering feasibility analysis, preliminary design, and third party rate consultant analysis.
- t. Phase II would be contingent on its successful completion of the Proposition 218 process, if applicable.

#### 4. Accounting Protocols

PCA to enter into a separate agreement with WRA by December 31, 2014 to achieve the following:

- a. PCA's adoption of activity-based costing for all its CSIP, SRDF and SVRP activities.
- b. Revision of the various financial protocols currently utilized to achieve one standard protocol for each of CSIP, SRDF and SVRP.
- c. Allocation methodologies for costs associated with CSIP, SRDF, and SVRP.
- d. An annual audit of PCA's financial transactions related to CSIP, SRDF and SVRP at WRA expense.
- e. PCA to credit to the CSIP and SVRP accounts any pro rata revenues it receives from byproducts of tertiary treated wastewater.
- f. A third-party agreed upon by both PCA and WRA to be hired to design and implement these Accounting Protocols.

#### MISCELLANEOUS

1. This Memorandum of Understanding is intended to provide a framework for negotiation of a Definitive Agreement. This Memorandum is not intended to create binding contractual obligations and other essential terms in addition to those set forth in this Memorandum are to be negotiated and agreed upon before the Parties reach a Definitive Agreement.
2. It is recognized and acknowledged that the Parties may not agree upon or enter into a Definitive Agreement. In such an event, no Party shall make any claim against any other Party related to the failure to enter into a Definitive Agreement.
3. An independent third-party review of proposed capital and operating costs to be performed before WRA Board approval of the Definitive Agreement.
4. The term of the Definitive Agreement to be 30 years or as subsequently agreed upon in the Definitive Agreement.
5. The Definitive Agreement may result in an Amendment to the 1992 Agreement and the amendments thereto. All previous Amendments will be reviewed to ensure conformity and continuity of relevant provisions. Amendment No.3 to be novated by the Definitive Agreement and any terms of Amendment No.3 that remain applicable will be restated in the Definitive Agreement.

6. The Definitive Agreement will incorporate standard contract language to govern enforcement and resolution of disputes.
7. This Memorandum of Understanding will expire the earlier of (i) execution of a Definitive Agreement, or (ii) March 31, 2015.
8. Individuals whose signatures appear on this document represent, warrant, and guarantee they are authorized to execute this document on behalf of those entities on whose behalf they purport to execute this document.

WITNESS, the Monterey Regional Water Pollution Control Agency, the Monterey County Water Resources Agency, the City of Salinas, the Marina Coast Water District, and the Monterey Peninsula Water Management District entered into this Memorandum of Understanding as of the date first written above.

**MONTEREY REGIONAL WATER POLLUTION CONTROL AGENCY**

By: \_\_\_\_\_

Dennis Allion, Board Chair

**MONTEREY COUNTY WATER RESOURCES AGENCY**

By: \_\_\_\_\_

Louis R. Calcagno, Chair of the Board of Supervisors

**CITY OF SALINAS**

By: \_\_\_\_\_

Joe Gunter, Mayor

**MARINA COAST WATER DISTRICT**

By: \_\_\_\_\_

Thomas P. Moore, Board President

**MONTEREY PENINSULA WATER MANAGEMENT DISTRICT**

By: \_\_\_\_\_

David Potter, Board Chair